



Minnesota Overlay and Guide to the 2011 Enterprise Green Communities Criteria™

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“Items revised from previous version are highlighted as such”

Overview

To create homes that are durable, healthy and efficient, Minnesota Housing (MN Housing) along with its funding partners, the Greater Minnesota Housing Fund and the Family Housing Fund, have created this updated Overlay and Guide to the 2011 Enterprise Green Communities Criteria (EGCC). This document modifies the “Mandatory” criteria of the 2011 EGCC to better adapt them to conditions in our region and to MN Housing’s Rental Housing Design/Construction Standards (RHD/CS).

Be aware that this Minnesota Overlay to the 2011 EGCC is subject to periodic revisions and updates. Such revisions and updates will not be made unless agreed upon by the funding partners listed above. Refer to MN Housing and/or Minnesota Green Communities website(s) for the most current versions of information and documents. The last revised date will be posted on the cover of the document.

Also be aware that the EGCC is subject to periodic revisions and updates as well. For example, at the time of this publication, Enterprise Green Communities (Enterprise) is not requiring certification under the Energy Star Multifamily High-Rise (MFHR) program. Projects falling under this criteria are still required to meet the energy performance requirements of Energy Star MFHR. Development teams are encouraged to verify they are working with the most current version of Enterprise’ documents including, but not limited to, criteria, addendums, workbooks, etc... Find the latest versions and clarifications on line at: www.EnterpriseCommunity.org/green

If a newer version of this document is released after the Initial Award of Financing Phase (of a project), the Developer and Architect of Record may use the EGCC version and Overlay version current at that time, **or they may use the newer versions** unless the documents are modified due to statutory or regulatory action.

Minnesota Housing Project Type Definitions

1. **Multifamily** (MF) is defined as any project or Dwelling Unit (DU) where the occupant(s) are renters and do not own the property. Multifamily projects may include single family homes, duplexes, townhomes, buildings with elevators, multi-storied buildings, etc., and are generally administered by MN Housing's Multifamily Division. Please contact MN Housing's Technical Staff for clarification if needed.
2. **Single Family** (SF) is defined as single family homes, duplexes and townhomes where the occupant owns the dwelling and the project is administered through MN Housing's Single Family Division.
3. **Definitions of Construction Type:**
 - a. The **Substantial/Gut Rehab** and **Moderate Rehab** defined in the 2011 EGCC "Introductions" section shall apply only to Multifamily projects;
 - b. All existing **Single Family** projects undergoing **rehab** must meet the requirements noted for substantial, gut, or moderate regardless of the work scope. For the purpose of this overlay and compliance with EGCC, Single Family projects shall not distinguish between substantial, gut, or moderate levels of rehab.

Acronyms & Abbreviations

- **CRV** = (Single Family) Community Revitalization Fund Program
- **EGCC** = Enterprise Green Community Criteria
- **GCCRW** = Green Communities Compliance Report Worksheet
- **IMMC** = Intended Methods of Meeting the Criteria
- **NSP** = (Single Family) Neighborhood Stabilization Program
- **RLP** = (Single Family) Rehabilitation Loan Program
- **Rehab** = Rehabilitation

Certification by Enterprise Green Communities

Although Enterprise certification **is not required** for projects funded by MN Housing in 2012, we encourage all new construction and substantial rehab developments to seek certification. If the development team is required by others to certify their project or if the team voluntarily decides to pursue Enterprise certification, MN Housing shall be notified in writing of this intent. If certified, MN Housing shall receive a copy of the final certification issued by Enterprise.

Enterprise shall be consulted early in the process if a certification path is pursued. Revisions to the EGCC, as outlined herein, are minimum requirements for MN Housing funded projects and may not meet all requirements needed for Enterprise certification.

Unless exempt or a waiver is granted, conformance to the entire 2011 EGCC as modified in this document is required. All criteria in the 2011 EGCC documents, if not specifically modified herein, are applicable as written.

How to use this Document

This Minnesota Overlay to the 2011 EGCC applies to all Multifamily and Single Family new construction, substantial/ gut rehab, and moderate rehab projects requesting MN Housing financing. It's designed to be used in conjunction with the 2011 EGCC available at the Enterprise website. The Items listed within this overlay shall revise/ modify the corresponding item of the 2011 EGCC.

The 2011 EGCC and this Minnesota Overlay and Guide are applied in different ways. The EGCC is applied based on the structure type (Single Family, Low-rise Multifamily, and Mid/ High-rise Multifamily). This Overlay and Guide apply to MN Housing defined MF and SF funded projects, and is based on whether the building is occupied by renters who do not own the property for which they live in versus owner-occupied properties.

1. For purposes of identifying the specific requirements of the 2011 EGCC relevant to your project, use the structure type (Single Family, Low-rise Multifamily, and Mid/ High-rise Multifamily).
2. For purposes of identifying which items of this Overlay and Guide apply to your project, consider which MN Housing Division is the funding source.

The EGCC and this Overlay and Guide do not apply to projects receiving Publicly Owned Housing Program (POHP) funds, also referred to as general obligation bond proceeds. Said projects must follow the State of Minnesota Sustainable Building Guidelines. <http://www.msbg.umn.edu/>

Minimum "Mandatory" Criteria and "Optional" (points) Criteria required for MN Housing funded MF and SF project shall be as follows:

Mandatory and Optional Criteria Table

Construction Type	Required Mandatory Criteria	Required Optional (points) Criteria	Certification
MF New Construction	Yes	Yes, at least (35)	Encouraged, but not required.
MF Substantial Rehab	Yes ⁴	Yes, at least (15) ⁶	Encouraged, but not required.
MF Moderate Rehab	Yes ^{1,3,4}	No, ⁶	Encouraged, but not required.
SF New Construction	Yes	No ⁷	Encouraged, but not required.
SF (All acquisition/ rehab)	Yes ^{2, 3, 4, 5}	No ⁶	Encouraged, but not required.

Key to Mandatory and Optional Criteria Table Footnotes

1. MF Moderate Rehab, only the following minimum "Mandatory" criteria of the EGCC and Minnesota Overlay and Guide are required:
 - a. 1.1a Green Development Plan: Integration Meeting(s)
 - b. 1.1b Green Development Plan: Criteria Documentation
 - c. 3.1 Environmental Remediation
 - d. 4.1 Water-Conserving Fixtures
 - e. 5.1c Building Performance Standard: Rehab 3 Stories or less
 - f. 5.1d Building Performance Standard: Rehab 4 Stories or more
 - g. 5.5a Efficient Lighting: Interior Units
 - h. 5.5b Efficient Lighting: Common Areas and Emergency Lighting

- i. 5.5c Efficient Lighting: Exterior*
- j. 7.11 Radon Mitigation*
- k. 7.15 Lead-Safe Work Practices*
- l. 8.1 Building Maintenance Manual*
- m. 8.2 Resident Manual*
- n. 8.3 Resident and Property Manager Orientation*
- 2. *SF Moderate Rehab (under the CRV program) only the following minimum “Mandatory” criteria of the EGCC and Minnesota Overlay and Guide are required:*
 - a. 1.1a Green Development Plan: Integration Meeting(s)*
 - b. 1.1b Green Development Plan: Criteria Documentation*
 - c. 3.1 Environmental Remediation*
 - d. 4.1 Water-Conserving Fixtures*
 - e. 5.1c Building Performance Standard: Rehab 3 Stories or less*
 - f. 5.5a Efficient Lighting: Interior Units*
 - g. 5.5c Efficient Lighting: Exterior*
 - h. 7.11 Radon Mitigation*
 - i. 7.15 Lead-Safe Work Practices*
 - j. 8.2 Resident Manual*
 - k. 8.3 Resident and Property Manager Orientation*
- 3. *Any improvements enacted upon at the time of moderate rehab (new finishes, replacement of equipment, systems, building components, or assembly of components) are required to comply with the corresponding “Mandatory” criteria, except when the criteria specifically denotes “New Construction only”.*
- 4. *Existing equipment, plumbing fixtures, and/or appliances that remain (not improved) are exempt from this requirement, if they have an Effective Useful Life (EUL) of at least 7 years. Existing items that remain shall be included as part of A Water Efficiency Improvement Plan and Energy Efficiency Improvement Plan. See applicable criteria overlay.*
- 5. *For SF Rehab under the NSP and RLP programs, refer to the applicable program procedural manual for rehab requirements.*
- 6. *Although not required (30) “Optional” points are strongly encouraged.*
- 7. *Although not required (35) “Optional” points are strongly encouraged. To affectively identify and encourage sustainability, a technical assistance (TA) meeting shall be conducted with the Owner, Builder (if selected), MN Housing Staff Architect, and Minnesota Green Communities staff via teleconference or face-to-face meeting. This TA meeting shall take place after selection/ award of funding, yet prior to finalized bidding and construction to affectively incorporate strategies, where applicable.*

Submittals

As a way to document a development's intended method of achieving EGCC requirements and to help monitor compliance, MN Housing has established the following submittal process.

The IMMC and GCCRW are located within the Enterprise "Certification Workbook". The workbook is available for download at the Enterprise website. www.EnterpriseCommunity.org/green. See the "Special Instructions" chapter of this Overlay and Guide for help finding and completing the IMMC and GCCRW forms.

MN Housing submittal requirements are as follows:

1. **Multifamily (MF) New Construction & Substantial/Gut Rehab & Moderate Rehab**

- a. **Initial Application Phase.** Submit with, and at the time of, the MN Housing Consolidated Request For Proposals (RFP) or Pipeline Application the following:
 - i. Intended Methods of Meeting the Criteria (IMMC).
 - ii. Mandatory signatures shall be included in "Green Development Agreement" portion of the IMMC (General Contractor signature not required at this phase).
 - iii. Waiver Request Form(s) (if applicable)
- b. **Intake Meeting Phase.** Upon application approval by MN Housing, the following shall be submitted at least 14 calendar days prior to the Intake Meeting (if approved by MN Housing, submission may be later but shall be received prior to Loan Commitment/ Closing):
 - i. A Water Efficiency Improvement Plan (Moderate Rehab, if applicable)
 - ii. An Energy Efficiency Improvement Plan (Moderate Rehab, if applicable)
 - iii. Preliminary HERS Rating Report(s) (New Construction & Substantial Rehab three stories or less)
 - iv. [Energy Performance Report Form](#) (New Construction and Substantial Rehab four stories or more). This is an Enterprise form available Online.
- c. **Loan Commitment/ Closing Phase.** Submit prior to commitment/ closing the following:
 - i. Updated IMMC with Mandatory signatures in the "Green Development Agreement" portion.
 - ii. Documentation of integrated design meeting and/or charrette as per Criteria 1.1a "Best practices in documenting" recommendation.
- d. **End of Construction Phase.** Submit the following prior to closing:
 - i. Green Communities Compliance Report Worksheet with criteria updated.
 - ii. Mandatory signatures shall be included in the "Compliance Report Agreement" portion
 - iii. Green Communities "Cost Development Worksheet"
 - iv. Other proof of compliance as deemed necessary by MN Housing

2. **Single Family (SF) CRV Program Requirements**

- a. **Initial Application Phase.** Submit to MN Housing with application the following:
 - i. Intended Methods of Meeting the Criteria (IMMC)
 - ii. Mandatory signatures shall be included in "Green Development Agreement" portion of the IMMC (General Contractor signature not required at this phase).
 - iii. Waiver Request Form(s) (if applicable)
- b. **End of Construction Phase.** The Administrator shall retain these documents in a project file for compliance. Only submit to MN Housing if requested.
 - i. Water Efficiency Implementation Plan – Moderate Rehab only
 - ii. Energy Efficiency Implementation Plan – Moderate Rehab only
 - iii. Blower Door Test – Moderate and Substantial Rehab only
 - iv. HERS Reports – New Construction only
 - v. Green Communities Compliance Report Worksheet with criteria updated.

vi. Mandatory signatures shall be included in the “Compliance Report Agreement” portion

3. Single Family (SF) Non-CRV Program Requirements

- a. For SF Rehab under other non-CRV programs, see the applicable program procedural manual for rehab requirements.

4. MN Housing Multifamily & Single Family Submittals and Documentation Summary Table

Requirement	Multifamily				Single Family		
	Initial App.	Intake Meeting	Loan Com. / Closing	End of Const.	CRV Initial App.	CRV End of Const.	Non CRV
Intended Methods of Meeting the Criteria / Green Development Agreement (with signatures)	Yes		Yes ⁴		Yes		
Waiver Request Form(s) if applicable	Yes ³				Yes ³		
Water Efficiency Improvement Plan (Moderate Rehab)		Yes ³				Yes ¹	
Energy Efficiency Improvement Plan (Moderate Rehab)		Yes ³				Yes ¹	
Blower Door Test		Yes ³				Yes ¹	
HERS Reports (New Construction & Substantial Rehab - 3 stories or less)		Yes ³				Yes ^{1,5}	
Energy Performance Report Form (NC & Substantial Rehab – 4 stories or more)		Yes					
Integrated Design Meeting Documentation			Yes ²				
Green Communities Compliance Report / Compliance Report Agreement (with signatures)				Yes		Yes ¹	
Cost Development Worksheet				Yes			
See applicable program procedural manual							Yes

Footnotes:

- Documents shall not be submitted unless requested by MN Housing. The Administrator shall retain this document in a project file for compliance.
- Enterprise offers grants to help cover the costs of planning and implementing green components of affordable housing developments, as well as tracking their costs and benefits. For Charrette Grants and Sustainability Training Grants (post-construction) please go to the [Green Communities Resources](#) web page.
- Only required if applicable.
- Document shall be updated and resubmitted.
- Single Family New Construction only.

Instructions

Completing the submittals for each MN Housing phase can be accomplished by:

1. Access the Certification Workbook
 - a. Going to the Enterprise Green Communities “Certification Workbook” available Online at: <http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities/certification/get-started>; Or,
 - b. Click on this direct link. [Certification Workbook](#); Or,
 - c. Access the workbook manually by:
 - i. Going to www.EnterpriseCommunity.org/green
 - ii. Then, click: “Certification” →
 - iii. Click on “2011 Certification” →
 - iv. Under “Prebuild (Step 1): Submittal Process” click on “2011 Certification Workbook” →
2. When the Certification Workbook is accessed, then:
 - a. Open the Certification Workbook (Excel spreadsheet) and “Save-As” a document on your computer.
 - b. Start on the “Project Overview” tab (on the bottom of the Excel spreadsheet).
 - i. Complete the top portion which includes project name, address, etc. This information automatically updates itself on the other tabs.
3. For MN Housing Initial Application Phase: Go to the “Intended Methods” tab (on the bottom of the Excel spreadsheet).
 - a. Complete the pull-down menus and other input information, where applicable, to your project.
 - b. The third column titled as ***“If necessary, provide additional information or explanation of alternative approach to meeting this measure” shall be completed and used to describe a more detailed explanation of the intended method to comply with said criteria.*** The pull down menu items under the ***“How Criterion will be implemented”*** column **must be supplemented with a more detailed explanation.**
 - c. When completed, insert electronic signatures and submit Excel (xls) version and hard copy.
 - d. Optional criteria points shall be entered in the pull-down “Intended Points” column. The points will automatically tabulate a subtotal by section and a project total at the end.
4. For MN Housing Loan Commitment/ Closing Phase:
 - a. Re-open the Excel spreadsheet “Certification Workbook” you created and saved on your computer. Create a document by “Save-As” for this phase.
 - b. Go to the “Intended Methods” tab (on the bottom of the Excel spreadsheet). Update the criteria as needed to align with the plans and specifications.
 - c. The ***“Criteria Documentation”*** column shall be completed with specification sections and plans sheet numbers included.
 - d. When completed, insert electronic signatures and submit Excel (.xls) version and hard copy.
5. For MN Housing End of Construction Phase:
 - a. Re-open the Excel spreadsheet “Certification Workbook” you previously created and saved on your computer. Create a document by “Save-As” for this phase.
 - b. Go to the “Compliance Report” tab (on the bottom of the Excel spreadsheet). Update the criteria as needed to align with as-built conditions. Also, update the ***“If necessary explain how the project deviated from the intended optional points laid out on the Intended Methods worksheet”***.
 - c. Go to the “Cost Development” tab (on the bottom of the Excel spreadsheet). Complete the “Green Communities Cost Development Worksheet”.
 - d. When completed, insert electronic signatures and submit Excel (.xls) version and hard copy.

Resources

MN Housing Technical Staff (Architects):

http://www.mnhousing.gov/idc/groups/public/documents/document/mhfa_006005.pdf

Minnesota Green Communities:

<http://mngreencommunities.org/>

Enterprise Green Communities:

www.EnterpriseCommunity.org/green

See Appendix Chapters of this overlay for samples of “Intended Methods of Meeting the Criteria” (IMMC) “Green Communities Compliance Report Worksheet” (GCCRW), and the “Waiver Request” form

Exemptions and Waivers

Compliance with specific criteria may be waived if the borrower/ developer/ architect can demonstrate that the criteria creates a tangible hardship or is inadvisable for a specific project. Alternate means of meeting specific criteria intent will also be considered, if applicable. Waiver Request Forms are available at

<http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities/certification/get-started>. See Appendix C for a sample Waiver Request Form.

Conflicting Requirements

Where requirements outlined herein conflict with other local, state or federal requirements (codes, ordinances, regulations, standards, etc) the most restrictive requirement shall apply. Such conflicts shall be coordinated with the local building official, zoning administrator, fire marshal, or other entity with jurisdiction in said area. For Multifamily projects, contact MN Housing's Technical Support Design/ Technical Support (Architects) with questions regarding MN Housing's standards or requirements.

Energy Star Raters

Where an Energy Star Rater and/ or Field Inspector is required, such individual and/or entity must be a Third Party Provider and shall not be (or be associated with) the design engineer for the project.

To search for a rater in Minnesota, go to:

http://www.energystar.gov/index.cfm?fuseaction=estar_partner_list.showPartnerSearch

Overlay to Criteria

The following revisions, additions, and/or clarifications to the 2011 EGCC shall be applied to MN Housing funded projects:

Section 3: Site Improvements

3.1 Environmental Remediation

Mandatory

Delete the “REQUIREMENTS” and replace with modified text as follows:

REQUIREMENTS

Multifamily (MF)

All multifamily projects must follow MN Housing’s Environmental Assessments Requirements available at http://www.mnhousing.gov/housing/architects/MHFA_007967.aspx

Single Family (SF)

1. *All single family projects:* Shall conduct a Phase I Environmental Site Assessment (ESA) if any and/or all of the following conditions apply:
 - a. Sites with five or more units where there has been a change in land use from industrial, commercial, institutional or agricultural to residential;
 - b. For new construction, where each individual residence/ dwelling unit is not connected to a city water supply;
 - c. For rehab, where the unit is neither connected to city water supply or an existing active well;
 - d. Where required as a condition of acquisition/ purchase.
2. *Exception:* Developments of five or more new units on previous residential land uses are exempt from the conducting a Phase I ESA.

Section 4: Water Conservation

4.1 Water Conserving Fixtures

Mandatory

For all projects

Under “REQUIREMENTS”, DELETE the last sentence which states “Substantial and Moderate Rehab projects must replace or retrofit all fixtures to meet flow rates above.”

ADD in its place the following text:

Multifamily (MF)

New Construction and Substantial Rehab: shall provide new water-conserving fixtures as per the Criteria. No overlay.

Moderate Rehab:

If an Effective Remaining Life (ERL) of any plumbing fixture is less than 7 years, said fixture(s) shall be replaced or retrofitted to comply with this criteria.

If the ERL of any plumbing fixture is 7 years or more, it shall be the Owner's option to:

1. Provide a Water Efficiency Improvement Plan for all fixtures proposed to remain. This plan is not required at initial application, however it shall be provided upon application approval (before MN Housing Intake Meeting) and shall include the following:
 - a. Assess water consumption of fixtures using a sample protocol of 5% or one per different unit type (whichever is greater).
 - i. Toilet Manufacturer date. Toilets dated before 1994 and/ or toilets without a printed gpf equal to or less than 1.6 gpf shall be replaced.
 - ii. Showerheads, bathroom faucets, and Kitchen faucets Flow Rate Test. Turn on the fixture at its normal position, place a container under the fixture and collect the water for 30 seconds, measure the quantity of water in the container in gallons (e.g. 1.3 gallons), multiply that amount by two to get the gpm rate (e.g. 1.3 gallons x 2 = 2.6)
 - b. Generate a list of prioritized cost effective improvements such as:
 - i. Replacing Toilets to meet the criteria
 - ii. Replacing Showerheads to meet the criteria
 - iii. Replace Bathroom Faucets or install aerator to meet criteria
 - iv. Replace Kitchen Faucets or install aerator to meet criteria
 - v. Other
 - c. Implement those improvements which provide a cost benefit of two years or less.
2. Or, replace/ retrofit all fixtures to comply with this criteria.

Single Family (SF)

New Construction and Substantial Rehab: Shall provide new water-conserving fixtures as per the Criteria. No overlay.

Moderate Rehab: Follow the criteria overlay noted above for Multifamily Moderate Rehab. The Effective Remaining Life shall be field verified to confirm age of each fixture. Disregard the 5% sample protocol. All dwelling units and all fixtures shall have manufacture date/ flow rate verified.

Section 5: Energy Efficiency

5.1a Building Performance Standards

Mandatory

New Construction: Single-family and multifamily buildings, three stories or fewer.

Modify the "REQUIREMENTS" to add the following text:

General Note to Multifamily and Single Family:

At the time of this publication, Enterprise acknowledges that Minnesota may not have a sufficient number of Air Conditioning Contractor's of America (ACCA) certified Heating Ventilating and Air Conditioning (HVAC) contractors. This is a requirement of Energy Star Version 3.0. If a sufficient number of ACCA certified HVAC contractors are not available in Minnesota when a project is going through Energy Star Version 3.0 certification, Enterprise (and MN Housing) will not require said contractors to be ACCA certified. However, projects will still be required to meet all other requirements under Energy Star Version 3.0 including the HVAC checklists.

Multifamily (MF)

1. If following the Performance Path for a building with multiple units and common systems, modeling may ignore all common area spaces and apply the common system efficiency ratings to the typical unit's system efficiencies.
2. Under the Prescriptive Path, it is acceptable when using common systems not addressed in the ENERGY STAR Qualified Homes 3.0, to use systems identified in the Prescriptive Path of ENERGY STAR Multifamily High Rise Guidelines (MFHR) available at:
http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/mfhr/ENERGY_STAR_MFHR_Prescriptive_Path_V1.0.pdf

Single Family (SF)

No overlay. New construction single family homes shall comply with the EGCC criteria.

5.1c Building Performance Standard

Mandatory

Substantial and Moderate-Rehab: Single-family and multifamily, three stories or fewer.

Modify the "REQUIREMENTS" to add the following text:

Multifamily (MF)

1. *Substantial/ Gut Rehab projects.* Shall meet the requirements of this criteria as written. No overlay.
2. *Moderate Rehab.*
 - a. Understanding that achieving a Home Energy Rating System (HERS) Index of 85 for Moderate Rehab projects may be unreasonable, meeting a HERS Index of 85 **is not** required. However, all Moderate Rehab projects must demonstrate energy performance **through one of the following options:**
 - i. **Energy Modeling (by a HERS Rater) Option:**
 1. Follow the "Recommendations" chapter of the criteria with the following modifications:
 - a. Provide an energy model at the design phase to establish the existing energy performance,
 - b. Identify cost effective improvements and incorporate them into another energy model showing improved performance goals,
 - c. Achieving a final performance HERS Index of 100 or less is preferred (you are encouraged to set 85 as a goal). Consult with MN Housing if a HERS Index of 100 cannot be achieved.
 - d. Include cost effective improvements into plans, specifications and work scope,
 - e. Conduct a mid-construction pre-drywall thermal inspection, if applicable, and
 - f. Verify the final performance of the building with post construction testing; **Or,**
 - ii. **Energy Efficiency Improvement Plan Option:**
 1. Conduct an energy audit with a blower door test prior to construction. This will establish a baseline of existing energy features and infiltration. Test at least 5% of the total number of units or one per different unit type (whichever is greater). (If due to the poor condition of the existing envelope a blower door test prior to construction may be impractical, the blower door test may be performed during the mid construction pre-drywall phase)
 2. Create and implement an energy efficiency improvement plan in accordance with the technical guidelines as outlined in the Minnesota Field Guide (Chapter 2.1.1).

3. Generate a list of prioritized cost effective improvements for the entire building(s) based upon the sample data.
 4. Implement those improvements that provide a cost benefit (good return on investment). Consult MN Housing for an acceptable return on investment pay-back period.
 5. Cost benefit can be performed by using established software or through a manual assessment.
 6. At the end of construction, provide a post-renovation inspection and conduct a blower door test to confirm infiltration improvements.
- b. Existing equipment that remains (not improved) that has an Effective Useful Life (EUL) of at least 7 years shall be included in the Energy Efficiency Improvement Plan
 - c. If existing equipment is replaced :
 - i. It shall meet the minimum efficiencies of the table located in the “Building Performance Standard 5.1c: Guidelines for Moderate and Substantial Rehab Projects Addendum” available at the EGCC website www.EnterpriseCommunity.org/green; Or,
 - ii. Meet the Department of Energy (DOE) Energy Star Builder Option Package (BOP) requirements based upon county and zone. Available at: http://www.energystar.gov/index.cfm?c=bop.pt_bop_minnesota

Single Family (SF)

1. For both Substantial and Moderate Rehab, create and implement an Energy Efficiency Improvement Plan as follows:
 - a. Create and implement an energy efficiency improvement plan in accordance with the technical guidelines as outlined in the Minnesota Field Guide (Chapter 2.1.1).
 - b. Generate a list of prioritized cost effective improvements for the entire building(s) based upon the sample data.
 - c. Implement those improvements that provide a cost benefit (good return on investment).
 - d. Cost benefit can be performed by using established software or through a manual assessment.
 - e. At the end of construction, provide a post-renovation inspection and conduct a blower door test to confirm infiltration improvements.
2. If replacing heating, cooling, ventilation and/ or domestic hot water equipment, install ENERGY STAR rated mechanical systems. It shall comply with MF items 2.d.i or 2.d.ii noted above.

Modify the “RATIONALE” to add the following text:

Utility cost for low-income families can account for 19.5% of household budget (EPA national average 2001). The intent is to maximize financial benefit of energy efficiency and weatherization efforts in moderate renovation projects without adverse impact on home durability, indoor air quality and existing mechanical equipment. Working with a weatherization expert (single family) on a plan tailored to the specific conditions of each home/ unit will help maximize energy savings and ensure health and safety of residents. Check with local utility for rebates or programs that may help off-set the cost of weatherization and new system/ component.

Resources

Minnesota Weatherization Policy Manual:

[http://www.state.mn.us/mn/externalDocs/Commerce/Minnesota Weatherization Policy Manual 070704032633 Master Manual.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Minnesota_Weatherization_Policy_Manual_070704032633_Master_Manual.pdf)

Minnesota Weatherization Field Guide:

http://www.state.mn.us/mn/externalDocs/Commerce/070704030802_Minnesota%20WFG.pdf

Listing of qualified auditors or HERS raters:

<http://www.dunwoody.edu/custom/energyaudit.html#jobs>

Minnesota Building Performance Association:

<http://mbpa.us/>

5.1d Building Performance Standard

Mandatory

Substantial and Moderate Rehab: Multifamily, four stories or more.

Modify the “REQUIREMENTS” to add the following text:

Multifamily (MF)

1. *Substantial/ Gut Rehab*: Shall meet the requirements of this criteria as written. No overlay.
2. *Moderate Rehab*.
 - a. Demonstrating that energy performance is equivalent to ASHRAE 90.1-2007 in Moderate Rehab projects may be unreasonable; therefore, performance equivalent to ASHRAE 90.1-2007 **is not** required for Moderate Rehab. However, Moderate Rehab projects are strongly encouraged to prepare an Energy Efficiency Improvement Plan and generate a list of prioritized cost effective improvements as described in 5.1c 2.1.ii . Improvements with a cost benefit (good return on investment) shall be implemented into the scope of work.
 - b. Only improvements enacted upon at the time of moderate rehab (replacement of cooling, heating and domestic water equipment) are required to comply with this criteria.
 - c. Existing equipment that remains (not improved) that has an Effective Useful Life (EUL) of at least 7 years shall be included in the Energy Efficiency Improvement Plan.
 - d. If existing equipment is replaced, it shall meet the Department of Energy (DOE) Energy Star Builder Option Package (BOP) requirements based upon county and zone. Available at: http://www.energystar.gov/index.cfm?c=bop.pt_bop_minnesota

Single Family (SF)

Not Applicable.

Section 7: Healthy Living Environment

7.2 Environmentally Preferable Flooring

Mandatory

Modify the “REQUIREMENTS – Prohibited Locations” to add the following exceptions:

For all **Multifamily** and **Single Family** new construction, substantial rehab and moderate rehab projects, the following Exceptions to the “Prohibited Locations” shall apply:

1. Ground-Connected Concrete Slabs Exception. Approved carpet may be installed on ground-connected concrete slabs if there is evidence of a properly installed vapor barrier present beneath the concrete slab where the carpet is installed. This exception is allowed at non-basement locations where the finish grade is lower than all sides of the concrete slab; **Or**,
2. Basements Exception. Approved carpet tile (not adhered to the floor) may be installed on below grade (full or partial basements) ground-connected concrete slabs if there is a functioning drain tile system that is connected to a functioning sump pump or gravity fed outlet; **Or**,
3. Capillary Break and Vapor Barrier Assembly. If approved by MN Housing, carpet may be installed at ground-connected (concrete slab on grade) floors if a properly installed capillary break and vapor barrier assembly is provided between the (concrete) slab and the carpet. Products made up of a dimpled, heavy-duty plastic membrane may be considered.

Notes:

- “Approved carpet/ carpet tile” shall meet the Carpet and Rug Institute’s Green Label or Green Label Plus certification for carpet, pad, and carpet adhesives.
- Avoid carpet pads and/ or adhered carpet at ground-connected floors.
- The exceptions noted here do not apply if there is a history of flooding, foundation seepage, leaking, or moisture within an existing basement or ground-connected concrete slab.

7.11 Radon Mitigation

Mandatory

New Construction and Substantial Rehab.

Modify the “REQUIREMENTS” to include the following added text:

Multifamily (MF)

1. *New Construction.* All Multifamily type buildings without underground parking shall provide a Passive sub-slab depressurization system. For the purpose of system design, the subfloor preparation, vent pipe, electric outlet and other requirements under the Minnesota State Building Code for Single Family new construction shall apply to New Multifamily Construction with the following amendments:
 - a. Provide at least one 4” diameter (in lieu of 3”) vertical vent pipe per 3,000 square feet of building foot print; or, at least one 4” diameter vertical vent pipe per dwelling unit (at townhomes). An exterior Radon mitigation system is not allowed.
 - a. All ground-connected floors of the building shall be tested when the project is complete (prior to initial occupancy). If testing finds Radon levels to be 4 pCi/l or greater, the Passive system shall be converted to an Active system by:
 - i. Adding a fan which remains in full operation continuously and is approved by manufacturer for Radon use.
 - ii. In apartment buildings with common area, the continuously operating fan shall be tied to a common area power source.

- iii. In townhome (without common space) buildings, the continuously operating fan for each unit shall be tied to the power source (meter) of the dwelling unit it serves.
- b. Testing protocols shall be as per the Minnesota Department of Health's "Best Practices for Radon Measurement in Minnesota Schools and Commercial Buildings". Available at: <http://www.health.state.mn.us/divs/eh/indoorair/schools/radontestingschools.pdf>
- 2. *Substantial Rehab.* All Multifamily Substantial Rehab projects shall provide, at a minimum, a Passive sub-slab depressurization system which meets the requirements defined under the Minnesota State Building Code for Single Family new construction with the following amendments:
 - a. Prescriptive or Performance approaches
 - i. A Prescriptive approach shall include:
 - 1. At least one 4" diameter (in lieu of 3") vertical vent pipe per 3,000 square feet of building foot print; or,
 - 2. At least one 4" diameter vertical vent pipe per dwelling unit (at townhomes).
 - 3. At each vertical pipe location, the pipe shall extend 1" below the concrete slab into a suction pit (void area), that is a minimum 3' in diameter and 1' deep.
 - ii. Or, a Performance approach which involves a custom analysis and design by a Radon Contractor/ Mitigation Service Provider.
 - iii. An exterior Radon mitigation system is not allowed.
 - b. Omit all reference to "Follow EPA guidance for conducting a radon test" noted in the Criteria. Testing protocols shall be as per the Minnesota Department of Health's "Best Practices for Radon Measurement in Minnesota Schools and Commercial Buildings". Available at: <http://www.health.state.mn.us/divs/eh/indoorair/schools/radontestingschools.pdf>
 - c. All ground-connected floors of the building(s) shall be tested when the project is complete (prior to initial occupancy). If testing finds radon levels to be 4 pCi/l or greater, the Passive system shall be converted to an Active system as noted in New construction above (1bi, 1bii, and 1biii).
- 3. *Underground Garages Serving Multifamily Projects.*
 - a. Omit all reference to Radon control at underground garages as noted in the Criteria. Underground garages designed and vented to meet applicable Minnesota codes and regulations do not need any other source of Radon control.
- 4. *Moderate Rehab.* Radon testing and/or Radon control are not required.
 - a. However, testing is strongly encouraged. If testing is voluntarily provided, it shall follow the testing protocol and Radon control noted above for Substantial Rehab (2a, 2b, & 2c).
 - b. If testing finds Radon levels to be 4 pCi/l or greater, the following procedures shall be followed:
 - i. Consult with a Radon Contractor/ Mitigation Service Provider to identify and design a Radon control system; and/or
 - ii. Consult with Minnesota Department of Health, Indoor Environments & Radiation Section, Indoor Air Unit (see Radon Technical Assistance below)
 - iii. An exterior Radon mitigation system is not allowed.

Single Family (SF)

- 1. *New Construction.* At a minimum, install a Passive sub-slab depressurization system as noted in the Criteria and as required by the Minnesota State Building Code for Single Family new construction. Although not required, we strongly encourage an Active system to meet the MN Department of Health Gold Standard for new construction.
- 2. *Rehab (without envelope improvement).* Radon testing shall be conducted in accordance with item number 4. *Testing* (below). If the radon testing results in a reading of 4 pCi/L or more a mitigation system shall be installed in accordance with item number 5. *Radon Mitigation* (below).
- 3. *Rehab (with envelope improvements).* Radon testing shall be conducted in accordance with item number 4. *Testing* (below). If the radon testing results in a reading of 4 pCi/L or more a mitigation system shall be installed in accordance with item number 5. *Radon Mitigation* (below).
 - a. When to Test:

- i. *Prior to construction.* Early detection of the presence of radon above the EPA recommendations action level of 4 pCi/L could result in a more cost-effective rehab if the work scope identifies and addresses mitigation measures early in the development of the project; Or,
 - ii. *After construction.* Rather than testing prior construction, it's acceptable to include a Passive system in the scope of work without testing. After construction is complete, but before occupancy, test for radon and activate the system if needed.
4. *Testing.* The lowest livable level shall be tested when the project is complete (and prior to occupancy) following the EPA testing protocol using a continuous radon monitor or simultaneous testing using two short-term test devices that are approved by the National Environmental Health Association National Radon Proficiency Program; Or National Radon Safety Board. Testing should always be conducted in the lowest livable level and by devices that meet basic requirements noted herein.
5. *Radon Mitigation.* In homes where a radon mitigation system is installed, the mitigation system shall meet the following requirements:
 - a. The system shall be installed by a nationally certified radon contractor/ radon mitigation service provider listed on the MN Department of Health's website. Mitigation work must meet the requirements of the ASTM E2121 "Standard Practice of Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings" standard.
 - b. Where mitigation is performed, a post-test shall be provided to verify that radon levels are below 4 pCi/L.
 - c. Test results shall be provided to the homeowner along with supplemental information on radon as specified in ASTM E2121 Section 7.7.
6. *Exterior System.* An exterior Radon mitigation system is not allowed.

Resources

Radon Zone Map of Minnesota:

<http://www.epa.gov/radon/states/minnesota.html>

EPA Protocol:

http://www.epa.gov/radon/pdfs/homes_protocols.pdf

Minnesota Department of Health Radon Mitigation Contractors:

<http://www.health.state.mn.us/divs/eh/indoorair/radon/mitigation.html>

Radon Technical Assistance:

Minnesota Department of Health

Indoor Environments & Radiation Section

Indoor Air Unit

PO Box 64975

St. Paul, MN 55164-0975

Phone: 651-201-4601 or 800-798-9050

Fax: 651-201-4606

TTY: 651-201-5797

www.health.state.mn.us/radon

7.15 Lead-Safe Work Practices

Mandatory

Delete the "REQUIREMENTS" and "RECOMMENDATIONS" sub-items and replace with the following text:

REQUIREMENTS

For **Multifamily** and **Single Family** rehabilitation, refer to the MN Housing Lead-Based Paint Policy at http://www.mnhousing.gov/housing/architects/MHFA_007967.aspx. Also see MN Housing's Design/ Construction Standards Supplement for Federally Funded Projects at

END OF MINNESOTA OVERLAY AND GUIDE TO THE 2011 EGCC

Appendix

A Sample Intended Methods of Meeting Criteria (IMMC)

Required at MF Initial Application Phase and Loan Commitment Phase.

Required at SF Initial Application Phase.

A sample IMMC is available at:

http://www.mnhousing.gov/idc/groups/public/documents/webcontent/mhfa_012433.pdf

B Sample Green Communities Compliance Report Worksheet (GCCRW)

Required at MF & SF End of Construction Phase.

A sample GCCRW is available at:

http://www.mnhousing.gov/idc/groups/public/documents/webcontent/mhfa_012433.pdf.

C Sample Waiver Request

A sample Waiver Request is available at:

http://www.mnhousing.gov/idc/groups/public/documents/webcontent/mhfa_012434.pdf